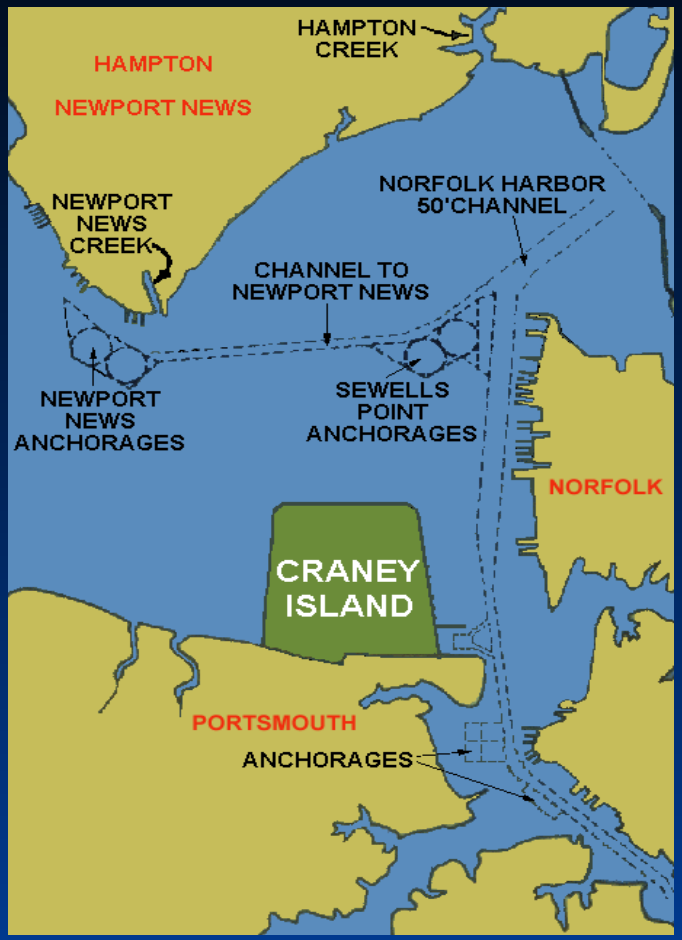
US Army Corps of Engineers

Norfolk District

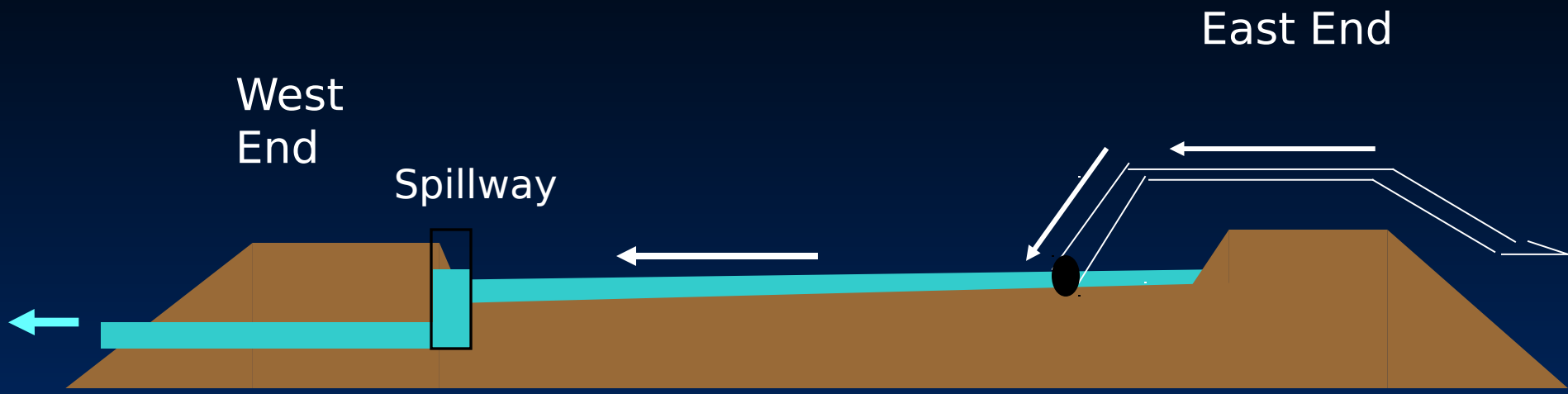
Craney Island Dredged Material Management Area

Craney Island Dredged Material Management Area Proximity



Craney Island Dredged Material Management Area

Material Settling State & Water Removal:



- Coarser material settles first near the inflow
- Dredge material settles in a sloping manner as water flows west
- Clean water is removed by Spillway
- Effluent meets all CWA Requirements

Dredged Material Placement

Inflow

Settling

Water Removal

Discharge of Water

Craney Island Environmental Monitoring

Water Quality

- Contractors are required to inspect effluent water every 4-hours, or 6-times per day.

- Water quality testing for Total Suspended Solids (TSS) is required 2-times per day.

- Additional testing is required if effluent water appears cloudy

Craney Island Environmental Monitoring

Water Quality Cont'd

- If effluent water at a spillway appears cloudy, contractors are required to stop the discharge at the spillway by raising weir boards.

- Contractors are required to document each inspection and testing event.

- Monitoring allows for real-time measurements and allows dredging contractors to take immediate action to modify their operations.

Craney Island Dredged Material Management Area

Monitoring and Testing Reports

WATER QUALITY MONITORING OF THE CRANEY ISLAND DREDGE MATERIAL DISPOSAL AREA, PORT OF HAMPTON ROADS, VIRGINIA DECEMBER 1973 TO FEBRUARY 1975 OLD DOMINION UNIVERSITY	WATER QUALITY MONITORING OF CRANEY ISLAND DREDGE MATERIAL DISPOSAL AREA, PORT OF HAMPTON ROADS, VIRGINIA APRIL 1975 TO MARCH 1976 OLD DOMINION UNIVERSITY	MICROCOSM EVALUATIONS OF SEDIMENTS FOR THE PORT OF HAMPTON ROADS, VIRGINIA OLD DOMINION UNIVERSITY
CRANEY ISLAND REHANDLING BASIN PHYSICAL AND CHEMICAL STUDIES VIMS, COLLEGE OF WILLIAM AND MARY	TOXICITY TESTS OF THE SEDIMENTS FROM THE PORT OF HAMPTON ROADS:SUBLETHAL EFFECTS OLD DOMINION UNIVERSITY	MACROBENTHIC COMMUNITIES IN THE VICINITY OF CRANEY ISLAND OLD DOMINION UNIVERSITY
SUBSURFACE INVESTIGATION CRANEY ISLAND MANAGEMENT STUDY NORFOLK HARBOR, VIRGINIA NORFOLK DISTRICT CORPS OF ENGINEERS	TOXICITY TESTS OF THE SEDIMENTS FROM THE PORT OF HAMPTON ROADS: LETHAL EFFECTS OLD DOMINION UNIVERSITY	INDUSTRIAL/ENVIRONMENTAL HYGIENE SURVEY CRANEY ISLAND DISPOSAL FACILITY NORTH ATLANTIC DIVISION
DEVELOPMENT OF A MANAGEMENT PLAN FOR CRANEY ISLAND DISPOSAL AREA BY U.S. ARMY CORPS OF ENGINEERS WATERWAYS EXPERIMENT STATION	POLYNUCLEAR AROMATIC HYDROCARBONS AND TOXICITY OF SEDIMENTS FROM THE ELIZABETH RIVER, HAMPTON ROADS, VIRGINIA OLD DOMINION UNIVERSITY	PERIMETER DIKE STABILITY ANALYSIS CRANEY ISLAND DISPOSAL AREA, NORFOLK DISTRICT, NORFOLK, VIRGINIA WATERWAYS EXPERIMENTAL STATION
CRANEY ISLAND DISPOSAL AREA SITE OPERATIONS AND MONITORING REPORT, 1980-1987 WATERWAYS EXPERIMENT STATION	DISPOSAL ALTERNATIVES FOR NEW WORK DREDGED MATERIAL, DEEPENING OF NORFOLK HARBOR WATERWAY EXPERIMENT STATION	MANAGEMENT PLAN FOR THE DISPOSAL OF CONTAMINATED MATERIAL IN THE CRANEY ISLAND DREDGED MATERIAL MANAGEMENT AREA WATERWAYS EXPERIMENT STATION
EFFLUENT WATER QUALITY MONITORING PROGRAM FOR CRANEY ISLAND DREDGED MATERIAL MANAGEMENT AREA HAMPTON UNIVERSITY	CRANEY ISLAND DISPOSAL AREA SITE OPERATIONS AND MONITORING REPORT 1980-1987 WATERWAYS EXPERIMENT STATION	FEASIBILITY OF INSTALLING VERTICAL STRIP DRAINS TO INCREASE STORAGE OF CRANEY ISLAND DISPOSAL AREA WATERWAYS EXPERIMENT STATION

Craney Island Wildlife

- Renowned as a bird watching spot.
- Provides foraging and nesting habitat for more than 270 species.
- Balance needs of Port of Hampton Roads while minimizing impacts on environment.

Craney Island Dredged Material Management Area

Inflow Rate

Craney Island Dredged Material Management Area

Current and Past Users

Allied Repair
Allied Terminals, Inc.
APM Terminals Incorporated
Armada Hess
Associated Naval Architects
Atlantic Energy Incorporated
BAE Systems
Blue Circle Atlantic Incorporated
Capital Concrete
Cargill, Incorporated
Carney Creek Property Owners
Chesapeake & Ohio Railway
Chilean Nitrate Corporation
City of Chesapeake
City of Hampton
City of Newport News
City of Norfolk
City of Portsmouth
Colonna's Shipyard
Crofton Diving Corporation
Diversified Group, Inc.
Dominion Terminals
Earl Industries, Inc.
Elizabeth River Terminals
Hampton Roads Sanitation District
Hampton Yacht Club
Holiday Marina, Inc.
IJK Development Group
Koch Fuels Incorporated
Lamberts Point Dock
Lehigh Portland Cement Company
Lyons Shipyard
Marine Hydraulic International
Massey Coal Terminal
McLean Contracting Company
Metro Machine Corporation
Mobile Oil Corporation
Naval Facilities Engineering
Newell and Boat Work, Inc.
Newport News Shipyard
Norfolk and Southern Corporation
Norfolk and Western Rail
Norfolk Southern Corporation
NORSHIPCO.
Pier IX Terminal Corporation
PreCon Marine, Inc.
Solite Corporation
Southern States Cooperative
TARMAC America
U.S. Coast Guard
VDOT
Virginia Boat and Yacht Service
Virginia Electric and Power Company
Virginia Port Authority
Weeks Marine, Inc.
Western Branch Diesel
Williams Enterprises
Willoughby Harbor Marina

Craney Island Dredged Material Management Area

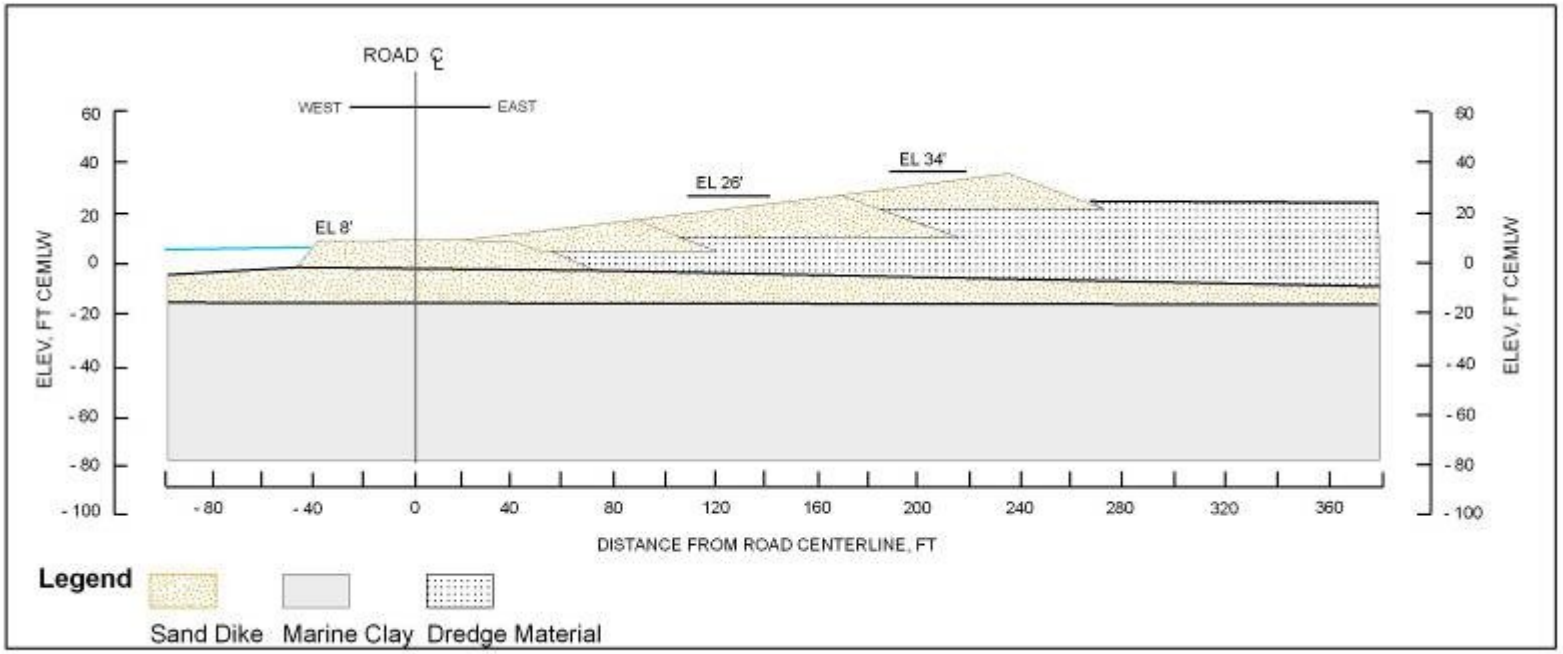
Congress

Section 148 of PL 94-587: Sec 148.

"Chief of Engineers, shall . . . Extend the capacity and useful life of dredged material disposal areas such that the need for new dredged material disposal areas is kept to a minimum."

WEST DIKE CONFIGURATION
REQUIRED TO RAISE DIKE

(based on WES Study 1987)



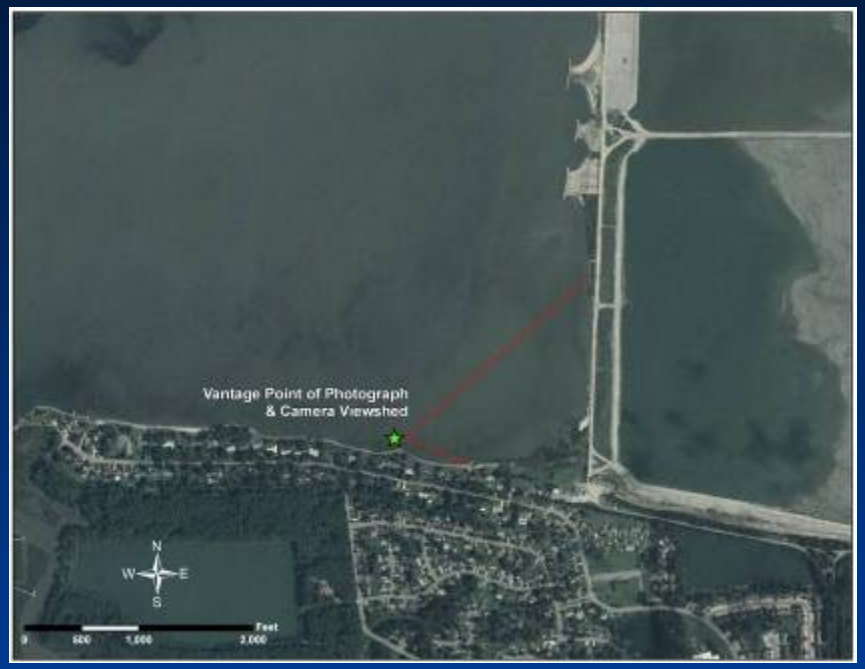
Summary of Stability Analysis for West Dike Construction					
Dike Elevation (ft)		35	40	45	50
Estimated Year		2005	2008	2013	2015
Factor of Safety		1.30	1.33	1.31	1.30

- Based on the analysis, the west dikes can be raised to 50 feet MLLW without additional modifications to the surface or geometry of the dike.

CURRENT (36’)

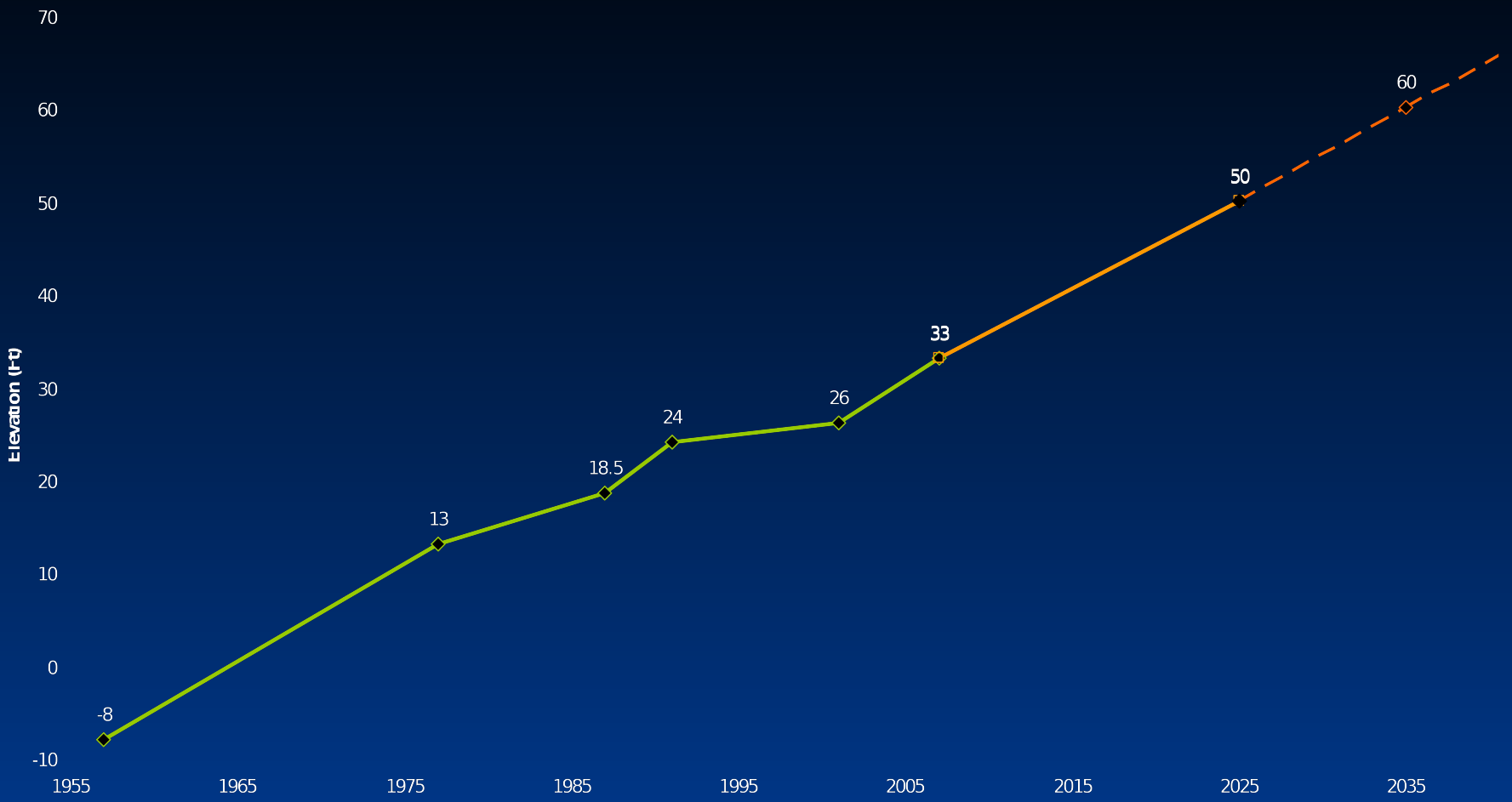
FUTURE (50’)

Photograph Date
24 January 2007



MAP VIEW (Aerial Image: NAIP 2005)

Craney Island Elevation



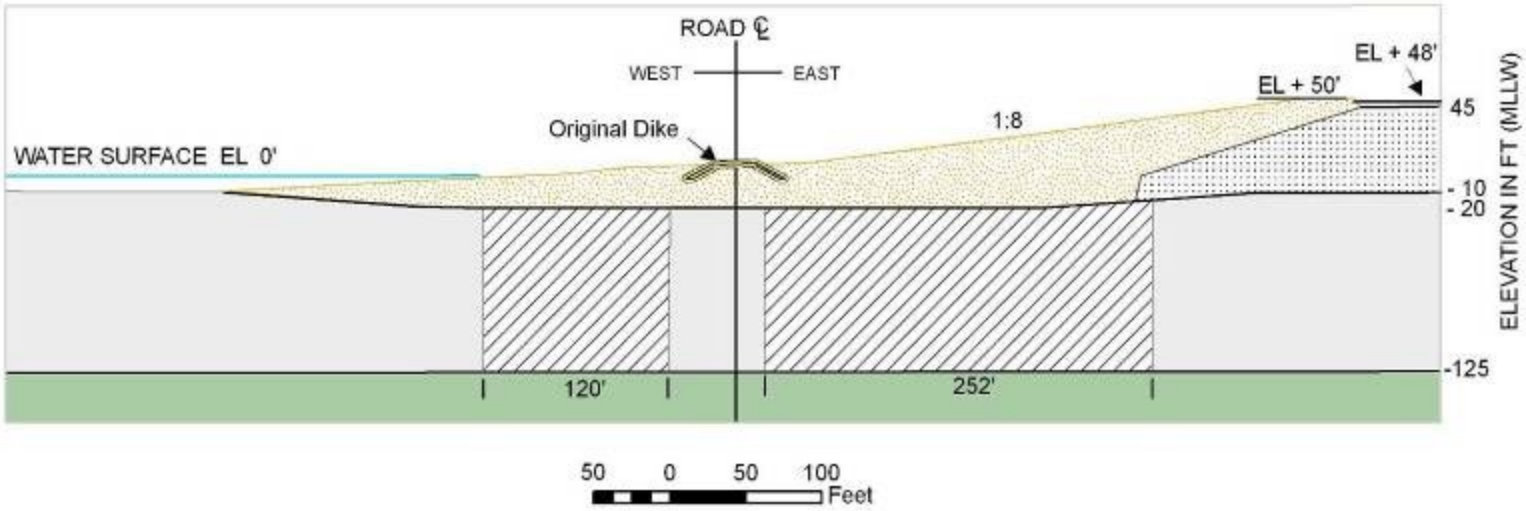
Craney Island Dredged Material Management Area

Projection of Life Expectancy

	Fill Date
• Original Site	1980
• Existing Site	2025
• Strip Drains Inside	2035
• Westside Berm	2045
• South Cell only	2050
• New Technology	?

PROPOSED CONSTRUCTION AND DIKE STABILITY

WEST DIKE AT EL +50'



Future Uses